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The Role of Objects in the Constitution of Collaborative Spaces

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ABSTRACT

This paper examines collaborative processes involving users and product development practitioners, in virtual co-creative spaces. Qualifications of roles are entailed in and through the mediation of objects, as they serve part and parcel of the coming-into-being of the collaboration. By focusing on the role played by objects in collaborative spaces, more specifically an Internet-based forum established by a medical device manufacturer for users of its products, the paper makes a threefold argument concerning the active role played by objects in collaborative processes: 1) the premises for user involvement in such spaces is subject to behind-the-scenes qualification processes directed at particular user configurations; 2) virtual spaces are being re-configured by users' and practitioners' interactions through diverse references of objects; and 3) users and practitioners qualify the content of these spaces by negotiating the meaning of the objects that both engage. Thus, such collaborative processes bear with them potential trade-offs and inherent tensions by way of boundary drawings and reordering of roles, articulated through qualification.

KEYWORDS

Collaborative Spaces, User Involvement, Re-configuration, Boundary Objects, Qualification

INTRODUCTION

This paper aims to highlight the role that objects play in virtual collaborative spaces of co-creation by empirically engaging a recent user involvement initiative undertaken by a medical device manufacturer (Presented in this paper under the pseudonym: CP.co). CP.co has been engaging users in its product development processes by adopting traditional methods of user involvement. Most recently CP.co has expanded

the scope of its methods by developing an Internet-based platform. Here the company's practitioners and users meet each other in virtual space, in order to explore and co-create concepts of new and improved products in colostomy and continence support (the company's speciality) while dealing with everyday challenges imposed on users owing to their medical conditions. The Internet-based platform, explicated by CP.co as a new user involvement method, is a site where practitioners can be seen to collaborate with users of the company's products. Such collaboration involves the mediation of objects albeit in a virtual forum. Through empirically drawn insights offered by CP.co's practitioners and the resources of the forum, the paper addresses the premises for co-creation processes and how these are negotiated and potentially (dis)qualified in virtual collaborative spaces by practitioners as well as users. The paper takes as a starting point for such empirical examination objects that users and practitioners engage within the Internet-based platform and explores how these play a role in the (re)configuration of collaborative spaces, and the qualification of users and practitioners. A synthesis based on the conceptualizations of objects drawing on the notion of Boundary Objects and related works, foregrounds the role of objects as transformative elements of collaboration, rather than simply effects of co-creative activities.

THEORETICAL BACKGROUND

The theoretical basis of the study lies in Actor-Network Theory (ANT), where it also draws, more broadly, upon theoretical concepts concerning notions of the object aimed at shedding light on its constitutive role in collaborative practices. The latter, whether in the form of Boundary Objects (Star and Griesemer 1989), or related concepts which take Boundary Objects as their starting point – e.g. Intermediary Objects (Boujut and Blanco 2003) and Epistemic Objects (Ewenstein and Whyte 2009) etc. - serves to frame the heterogeneous and mediated character of collaborative practices. Yet, ANT allows for nonhuman action to play more explicitly into the analysis and in the framing of collaborative practices, as part and parcel of hybrid collectives, with implications for participatory engagements and notions of agency herein (Callon 2004). In so doing, the theoretical stance allows for an empirical treatment which may scope possible dynamics and orderings of collaborative practices as they come-into-being and are transformed, in terms of roles, human and nonhuman, without taking roles and their attributions as *a priori* givens. The ability to discern and hence attribute agency to nonhumans opens up possibilities to dig into collaborative practices. In that sense the notion of qualification (Callon

2005) becomes an analytical device for exploring more thoroughly the role that objects play in the conceptualization of and the trade-offs in professional and user practices, and in-between. Moreover, the paper engages qualification specifically in terms of the unfolding processes of designing and innovating in collaborative practices. Here objects play a part as material re-presentations of the evolving object of design supporting communication and participation in the creative process of making (Björgvinsson et al. 2012).

METHODOLOGY AND DATA

The study is based on a qualitative approach to inquiry and the generation of empirical material for analysis. While the Internet as a field site in qualitative studies is far from new, a focus on user forums as an empirical site is gaining interest, for examining and understanding user innovation activities (see, e.g. Hyysalo et al. 2013). The present study has engaged ethnographic methods to treat the Internet forum as both a cultural and technological artifact (Hine 2000). While the generation and treatment of empirical material has been limited to areas of engagements by users and design practitioners in a "virtual world environment," internet as culture and artifact has shaped sensitivities to our inquiry, toward a "responsive methodology, sensitive to emergent phenomena and emergent research questions" (Boellstorff et al. 2013;). More specifically, the approach has been twofold, entailing: 1) an examination of a delimited set of postings on a relatively recent company-initiated Internet forum dedicated to user innovators; and 2) a delimited set of semi-structured interviews of design practitioners affiliated with the company in question.

FINDINGS

Qualifying collaboration through user involvement methods

The company, CP.co, explicates in its mission statement the importance of users for product development, insofar as users help create value to the company's product development processes. A common characteristic for the broad range of methods in user involvement developed by the company is that they invoke different spaces (be it physical or virtual). These mediate interactions between users and CP.co's practitioners (e.g. one such space being a special toilet facility equipped with devices for monitoring consenting participants of use studies, as they interact with devices and situations under study). Different users give insight into everyday activities

for demonstrating to CP.co's practitioners how they use current and forthcoming products within continence and colostomy support. In such ways CP.co aims to create knowledge regarding the different and potentially unexpected ways that users (inter)act with new products and materials. While firms such as CP.co and also popular management literature engage the notion of "users" for demonstrating creativity entailed in a variety of user involvement methods, they are much less concerned with reflecting upon "behind-the-scenes" processes that feed off those methods with "appropriate" users. The number of CP.co's users with their colostomy support products may count in the thousands – this being the case, what, then, qualifies a user to be relevant for collaboration? What is the relationship between *the configuration of the user* (Woolgar 1991) and that of the collaborative spaces that she/he comes to inhabit during user involvement processes at CP.co? We explore these issues by examining a recent undertaking by CP.co, initiated to harness user inspired innovation - the Internet-based communication platform User Innovative Network (a pseudonym, henceforth referred to as "UIN").

Configuration issues in *virtual* collaborative spaces

The network UIN nurtures forums and sub-forums where users (and CP.co practitioners), as members, can discuss everyday life issues related with colostomy and continence support. Other members, such as non-users of the company' products, may also engage at this site as it is not exclusive. Users are expected to contribute to UIN's content by qualifying product understandings and sharing opinions about product improvements through postings, or even offering new concepts by the uploading of sketches onto the site. Through this site, a virtual space for the development of collaborative relations and interactions has been envisioned by the company, as is also explicated in the company statement on UIN. More concretely, the company practitioners post specific 'challenges' onto the site. While based on the company product portfolio, the challenges are aimed at cultivating innovations, by setting the stage for dialogue and negotiation among users of colostomy and continence products and the company's product development practitioners (e.g. user experts). The virtual setting of the UIN platform and the members' forum may, at first glance, be construed as an obvious venue where collaborative processes of interaction is enabled, in-between users and with company practitioners. While this indeed could be the case, UIN comprises, moreover, of a set of *ordering devices* (Suchman 2007), through which the very collaboration at play has been qualified. Contributions to the collaborative engagement through comments (texts), uploaded images, etc., allow for user

involvement, albeit, in a rather *configured* form of interactivity, i.e. without the risk of disturbing the UIN's very infrastructural ordering of the collaborative space. How then, may an array of materials specifically intended in the UIN space to equip users to *innovate with*, be construed, with regard to users' engagement and means with which to contribute to this virtual collaborative space? This will be taken up in what follows.

The Innovation Box case

We complicate through the next instantiation, the treatment of the heretofore UIN space of collaboration, by introducing one of the specific challenges on the UIN, namely the case of the Innovation Box. The IB as a "toolkit" comprises of an array of materials intended to equip users to innovate with. Through a four-part examination of the UIN space, we examine how IB figures into user involvement in UIN with a focus on the co-constructed and negotiated collaborative relationship of members mediated in and through the UIN.

Part 1. Making users interested

A CP.co's employee posted the following comment and picture (Figure 1), in order to open up the innovation challenge of IB for comments and inputs from UIN users. The posting reads:

"[Below there] is a photo of one of our old toolkits. It was sent to selected members so they could make mock ups of their ideas...It contained different foils, non wovens, adhesive flanges, couplings, velcro, outlets, filters, couplings, scalpel and a small hand welder. We are soon to make new toolkits. We can make more or less copies of the old ones, but if anyone has improvement suggestions we will be glad to hear about it."

CP.co's presentation of the IB may be construed as an *interesement device* (Callon 1986) provided by CP.co's employees to UIN's users. The IB's visual (an array of materials) and virtual re-presentation (Figure 1) is offered to the users as an object capable to generate specific collaborative content. In that way users are invited to interact with and re-constitute IB's content by virtually engaging with some of its materials through a visual representation. In this way it is taken up and problematized to interest, and mediate discursively as well as materially through the UIN virtual platform. In that sense the IB seems to enroll and configure users only through some delimited instantiations by CP.co's employees.

But is this the case?



Figure 1. The "old" IB, a toolkit containing an array of materials presumably for materializing new ideas.

Part 2. Configuring users and practitioners

As the IB seeks for suggestions for its improvement it is worth to follow some cross-talks in-between UIN's users and practitioners and explore whether IB is perceived as initially intended:

[User 1]: "I think that it would be a good idea to include two Kevlar sheets in any future toolkit."

[CP.co practitioner]: "...we will include more or larger pieces in next version. In the mean time I will find a sheet in our lab and sent it to you, so you can continue your great innovation work."

[User 2]: "Being a clumsy and impractical person, I think I would need two things: 1. For each item a description what it is and what it could be used for. 2. Some guidance or instructions for use on the welder and probably some other things as well. "

[CP.co practitioner]: "We can include a list of the different materials/components and a description of what they are and how they can be used."

[User 2]: Thanks...that will be very helpful. The video could be posted in UIN or on Youtube?

As soon as different users respond to IB's virtual representation, it seems the initial attempt, for making users interested to only some of its particular forms (e.g. materials), is challenged. The IB now turns from an *interessement device* with the immediate intentions of CP.co set earlier by the CP.co's practitioner, into something else. It is still flexible enough to engage users, while allowing users to relate to it, in a manner which is also specifically meaningful to them. This makes it a Boundary Object (Star and Griesemer 1989). Users and practitioners now engage IB's material

properties but also negotiate upon processes, such as descriptions and instructions, that constitute a virtual but also a "traditional" co-creative space. Once IB's role is exposed to users its meaning no longer resembles a single material instantiation, but rather a socio-material space in which the user and the practitioner become configured as co-creators by revealing and transacting upon IB's multiple role. Moreover, the IB's different translations do not only describe its immediate context (improving IB within UIN) and configure actors, but also reveal that the terms of collaboration may involve issues of planning, organizing and learning, that traditionally seemed to be identified by CP.co and not by the users, as such. There seems to be an inherent paradox in members' consenting to the IB being presented (by CP.co), while its particular representation is being challenged by the same.

Part 3. Qualification and trade-offs

IB's introduction into the UIN and how users respond to this initiative, within the forum, brings to the fore, the relationship between the company practitioners (e.g. the user experts) and the insight and expertise brought into play by user members. The seeming discrepancy between the company's move to *enable* users to innovate *with* IB, and some users' redefining of its meaning *to them*, points to issues that may be potentially at stake, in terms of co-creation, i.e. from the vantage point of *who*, *and in* what capacity, enters into a collaborative process. In the dialogue showcased in the previous section (part 2), both users and practitioners seem to be configured unproblematically, even though the company goes *beyond* the boundaries of its traditional 'in-house' engagement of users, through YouTube and the shipping of extra materials. Yet, tensions regarding users' acceptance of their configuration become apparent, as soon as well-established elements of professional practices, such as fixed specifications and professional assumptions (even for user experts) about the users and their potential roles in the collaboration, come to be challenged through the users' contributions. A company practitioner, who spends some of her time, as part of her professional work, reviewing the content of UIN, mentions the following:

"...once you start to communicate with the end users they also expect answers. Then you have to sit there all the time. I tried that for 2 months just to sit there and communicate with them and I think part of it was learning process for both ways. Because I needed to teach them [the users] about general things which they did not know and then I got more information back, so the more information I gave them, the more information [the users] were able to give me back. It took a while to put them on a level that they could provide me with very qualified

information which I could use. Because [usually] 99% of what I get I already know.”

The *qualification* of user insights brought about in the virtual space of UIN, intertwines with issues of practice, as these challenge current framings of learning, collaborating and working arrangements found in traditional organizational spaces. Thus, users’ relevance for co-creation processes, in and through collaboration, seems to depend on configuration terms, mainly defined by the company. But as users seem to hold also the role of collaborators at the early phases of product development, then they may also be conceptualized as *skilled practioners* (Kilbourn 2012): They are both experts in dealing with their diseases but they are also recognized creative assets in product development owing to their skills. As such, users’ skills are likely to entail creative elements relevant for pre-defined spaces, actors and problems in co-creation. Yet, such creativity may as well be an asset for the design and staging of the processes “behind-the-scenes” to the foregrounded co-creation, that enable users’ insights and issues to prevail in different organisational settings within the company.

An occasion for demonstrating how users’ creativity deviates from – and challenges – CP.co’s professional frames of qualification, is reflected in the following comment and photo (Figure 2) that another user, “the inventor”, posted under the IB challenge:

“I have made several ostomy night collection systems since I have not found any on the market. My output is high volume liquid with chunks of whole food. I was not able to sleep / rest more than an hour without getting up to empty my pouch. I attached hose, originally respiratory hose and now washing machine drain hose, to a two piece pouch and run that into a pickle jar. I would like to find a more flexible 1" hose and a better way to attach it to the wafer. Is anybody working on anything like this? See attached picture [referring to figure 2].”

As the inventor found relevant this particular post for presenting his invention he challenges the seemingly stable configured space of the IB challenge, with the visual representation of IB illustrated previously (in part 2). This user does so, by enrolling new references, that while still resembling particular problems of everyday practice, are not practicable in the previous mutually configured (i.e. co-configured) space of IB. This invokes different collective (dis)engagements and interactions in a newly constituted collaborative space through the inventor’s introduction of new references. This issue will be further explored in the next part.



Figure 2. This is the devise made by the inventor and presented to UIN's members as a comment to the post regarding the IB's improvement.

Part 4. Re-configuring spaces and users

In what follows different engagements by other users and CP.co's practitioners will be leveraged in relation to the previous user (inventor's) posting to illustrate how the IB reveals potentials for the collective re-configuration of collaborative spaces.

[Two users' responses to inventor's post]:

"This is not my specialty, but both portable ladies' hair drying sets and hotel wall mounted hair driers have very flexible hoses of moderate diameter, and presumably also end fittings that might be adaptable."

"I would look for respirator hose for babies in hospital intensive care units."

[CP.co practitioner's response to inventor's post:]

"Personally I think that you with your great and innovative solution have shown the essence of what this site is all about: "if no one else can make the solution you need why not make it yourself?" When this is said I fully understand that it can be rather difficult to obtain the needed freedom to move around while sleeping for instance due to the limited flexibility of the repository hose. I am not aware that anyone inside the community is working on this exact issue at the moment, but I believe that you have shown a principle that would be relevant for a lot of our members and very interesting to improve in the future. I will try to have a talk with some of our experts here at CP.co and hopefully they will have some ideas for how to improve your solution further."

As can be seen IB is now interpreted by users as well as the practitioner – including the inventor – as an object to be dealt with rather than one which unequivocally enables. In other words it is not just an ordering device as it becomes qualified and thus re-ordered, re-configuring the UIN. No longer does it only engage potential users as a virtual reference to an array of

materials presented nor is it open for any kind of improvement, only some. The responses to the invention's content characterize the *collective transformation* that takes place in the re-configuration of a collaborative space (Boujut and Blanco 2003: 211). The users and the practitioner have now been engaged in IB's transformation process by negotiating the qualification of one of its constituents: The invention's content. Is the invention accepted in this particular post by those involved? Which parts of it are actually qualified, by whom and why are others not? It may be the "principle behind it" as the CP.co's practitioner puts it, but it may be the "hair driers" that UIN's users chose to respond upon. But certainly not everyone accepts everything. Thus the knowledge created through such qualifications entails tensions and thus spans the boundaries of both the UIN and CP.co, as it feeds off other local and distanced spaces of use. As an *epistemic object* (Ewenstein and Whyte 2009), the IB communicates possibilities and limitations it raises in the UIN, questions explicated for instance through the invention (see figure 2). Moreover we can argue that IB raises issues also about the virtual and conceptual space. In other words that the (re)configuration of its *constituencies* (A.telier 2011) is a process (but also an outcome) of qualification where tensions and negotiations are at play in-between them.

Through the various parts of this section (parts 1-4) that were unfolded, the IB may be deemed as constituting four co-creative spaces (Figure 3): (1) where IB's particular instantiations are mobilized for making users interested in the particular challenge; (2) where users and practitioners are co-configured as co-creators, and the negotiation of meanings is mediated; (3) where trade-offs take place during the qualifications of those involved; and (4) where ultimately, users as well as practitioners are re-configured.



Figure 3. Four different spaces of the Innovation Box (IB).

DISCUSSION

In a broader context the reconfiguration of IB may be characterized as a collective approach to the *object of design*, in this case the improvement of IB (A.telier 2011). For the company CP.co, as well as members for the UIN alike, the IB initially engages them towards its improvement as a common focus but it transforms beyond that. This transformation can be described as actors' projection of new socio-material concerns in what had been seemingly stabilized relationships between users and practitioners (or customers and the company). In that way CP.co's envisioned use of IB as a virtual reference (Figure 1) is being challenged by users such as the "inventor" as new meanings (Figure 2) are projected, to the reference in question. The active interpretation by users through their engagement with the object of design may feed off concerns as to organizing aspects of co-creation. Virtual collaborative spaces such as UIN indicate that new socio-material concerns cannot be excluded from consideration. This is particularly relevant for CP.co as users are not necessarily delimited in their consideration of the collaborative space. Such new concerns being projected in a seemingly delineated collaborative effort (e.g. IB's improvement) may not only provide insights about users' needs but they may also regard reflections of product appropriation in every day use practices.

CONCLUSIONS

This paper has explored the involvement of users in virtual spaces of co-creation, exemplified by the User Innovative Network (UIN). With spaces, in the *multiple* sense, this exploration has catered to how objects and members may be seen to engage in a mutual process of qualification, with the effect of reconfiguring the particular space at hand. Moreover, the notions of qualification and reconfiguration, seen as transformations, entail trade-offs in between users, practitioners and collaborative spaces. In the light of such trade-offs, which the transformations necessarily bear with them, the involvement of professional practices in co-creation may be challenged. With the role of objects as an analytical means to foreground the issue of virtual collaboration, the paper has argued that the particular instantiations of objects engage those involved differently, be they users or practitioners, from one space to another (exemplified in the four parts of the findings). Users and practitioners engage instantiations of objects in their everyday and professional practices and in the virtual collaboration, as they project them to co-creative spaces. The paper conceptualizes these references, first as *interessement* devices, but more importantly, as

ordering devices that order yet also *reconfigure* the roles of UIN members. Moreover we argued that such references act also as boundary and epistemic objects, where they enable members, in and through co-creation, to collaborate by raising qualification issues.

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